National Institute of Environmental Health Sciences

Emerging infectious diseases in cetaceans worldwide and the possible role of environmental stressors

Author(s): Van Bressem MF, Raga JA, Di Guardo G, Jepson PD, Duignan PJ, Siebert U, Barrett T, Santos MC, Moreno IB, Siciliano S, Aguilar A, Van Waerebeek K

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Abstract:

We reviewed prominent emerging infectious diseases of cetaceans, examined their potential to impact populations, re-assessed zoonotic risk and evaluated the role of environmental stressors. Cetacean morbilliviruses and papillomaviruses as well as Brucella spp. and Toxoplasma gondii are thought to interfere with population abundance by inducing high mortalities, lowering reproductive success or by synergistically increasing the virulence of other diseases. Severe cases of lobomycosis and lobomycosis-like disease (LLD) may contribute to the death of some dolphins. The zoonotic hazard of marine mammal brucellosis and toxoplasmosis may have been underestimated, attributable to frequent misdiagnoses and underreporting, particularly in developing countries and remote areas where carcass handling without protective gear and human consumption of fresh cetacean products are commonplace. Environmental factors seem to play a role in the emergence and pathogenicity of morbillivirus epidemics, lobomycosis/LLD, toxoplasmosis, poxvirus-associated tattoo skin disease and, in harbour porpoises, infectious diseases of multifactorial aetiology. Inshore and estuarine cetaceans incur higher risks than pelagic cetaceans due to habitats often severely altered by anthropogenic factors such as chemical and biological contamination, direct and indirect fisheries interactions, traumatic injuries from vessel collisions and climate change.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes

Geographic Feature:

resource focuses on specific type of geography

Freshwater, Ocean/Coastal

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Zoonotic Disease

Zoonotic Disease: Brucellosis, Other Zoonotic Disease

Zoonotic Disease (other): Toxoplasmosis

Resource Type:

format or standard characteristic of resource

Review

Timescale:

time period studied

Time Scale Unspecified